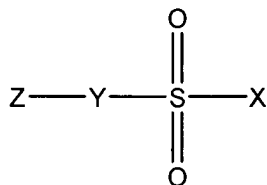


In the claims

1. **(currently amended)** A system adapted for use in a health-related environment comprising:

a biofilm resistant surface comprising an effective amount of bioavailable anti-fouling compound represented by general structure 1:



**1**

wherein

X represents -OH, -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents O, S, Se, or NR;

Z represents optionally substituted alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or  $-(\text{CH}_2)_m\text{-R}_{80}$ , wherein when Z is substituted, a substituent is selected independently for each occurrence from the group consisting of halo, azido, alkyl, aralkyl, alkynyl, cycloalkyl, hydroxyl, alkoxyl, amino, nitro, sulfhydryl, imino, amido, silyl, alkylthio, sulfonyl, sulfonamido, ~~acyl~~, formyl, ~~alkoxycarbonyl~~, heterocyclyl, aryl, heteroaryl, trifluoromethyl, and cyano;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or  $-(\text{CH}_2)_m\text{-R}_{80}$ ;

$\text{R}_{80}$  represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive, and

wherein the compound is releasable from the surface.

2. **(original)** The system of claim 1, wherein X represents -OH, F, Cl, or Br.

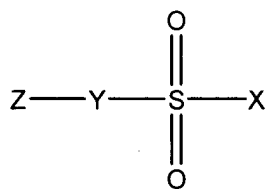
3. **(original)** The system of claim 1 wherein Y represents O.
4. **(original)** The system of claim 1, wherein Z represents optionally substituted alkyl, aryl, or  $-(CH_2)_m-R_{80}$ .
5. **(currently amended)** The system of claim 1 wherein Z represents optionally substituted alkylphenyl, ~~heteroalkylphenyl~~, arylphenyl, or heteroarylphenyl.
6. **(original)** The system of claim 1, wherein Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
7. **(original)** The system of claim 1, wherein R represents H or alkyl.
8. **(original)** The system of claim 1 wherein X represents -OH, F, Cl, or Br; and Y represents O.
9. **(original)** The system of claim 1 wherein X represents -OH or Cl; and Y represents O.
10. **(original)** The system of claim 1, wherein X represents -OH, F, Cl, or Br; and Z represents optionally substituted alkyl, aryl, or  $-(CH_2)_m-R_{80}$ .
11. **(original)** The system of claim 1, wherein X represents -OH or Cl; and Z represents optionally substituted alkyl, aryl, or  $-(CH_2)_m-R_{80}$ .
12. **(original)** The system of claim 1, wherein X represents -OH, F, Cl, or Br; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
13. **(original)** The system of claim 1, wherein X represents -OH or Cl; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
14. **(original)** The system of claim 1, wherein X represents -OH, F, Cl, or Br; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-

dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

15. **(original)** The system of claim 1, wherein X represents -OH or Cl; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
16. **(original)** The system of claim 1, wherein Y represents O; and Z represents optionally substituted alkyl, aryl, or  $-(CH_2)_m-R_{80}$ .
17. **(original)** The system of claim 1, wherein Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
18. **(original)** The system of claim 1, wherein Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
19. **(original)** The system of claim 1, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents optionally substituted alkyl, aryl, or  $-(CH_2)_m-R_{80}$ .
20. **(original)** The system of claim 1, wherein X represents -OH or Cl; Y represents O; and Z represents optionally substituted alkyl, aryl, or  $-(CH_2)_m-R_{80}$ .
21. **(original)** The system of claim 1, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
22. **(original)** The system of claim 1, wherein X represents -OH or Cl; Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.

23. **(original)** The system of claim 1, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
24. **(original)** The system of claim 1, wherein X represents -OH or Cl; Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
25. **(original)** The system of claim 1 wherein the biofilm resistant surface comprises a coating.
26. **(original)** The system of claim 25, wherein the coating is applied to a medical device.
27. **(withdrawn)** The system of claim 25, wherein the coating is applied to an implant.
28. **(withdrawn)** The system of claim 25, wherein the coating is applied to a graft.
29. **(previously presented)** The system of claim 1, wherein the effective amount decreases the amount of plant pathogens attached to a plant or plant component over a defined period of time by a factor of 4 relative to a control that does not comprise the compound.
30. **(original)** The system of claim 1, wherein the bioavailable antifouling compound is released from the biofilm resistant surface at a rate ranging from about 1 to about  $200 \mu\text{gcm}^2\text{d}^{-1}$ .
31. **(currently amended)** The system of claim 1, wherein the effective amount of bioavailable antifouling compound is in the range of about 0.01 % by weight ~~mg/ml~~ to 6 % by weight ~~mg/ml~~.
32. **(original)** The system of claim 1, wherein the bioavailable antifouling compound is released from the biofilm resistant surface as a sustained release.

33. **(previously presented)** The system of claim 1, wherein the bioavailable antifouling compound is released from the biofilm resistant surface at a preselected rate.
34. **(withdrawn)** The system of claim 1, wherein the biofilm resistant surface is applied to an exterior surface of a living organism.
35. **(withdrawn)** The system of claim 34, wherein the bioavailable antifouling compound is carried in a vehicle adapted for application to the exterior surface of the living organism.
36. **(withdrawn)** The system of claim 35, wherein the vehicle is selected from the group consisting of liquids, gels, powders, ointments, salves, creams, pastes and paints.
37. **(withdrawn)** The system of claim 1, wherein the bioavailable antifouling compound is applied to an epidermal surface of a human being.
38. **(original)** The system of claim 1, wherein the bioavailable antifouling compound is released by a material incorporated as part of a medical device and wherein the biofilm-resistant surface is a surface of the medical device.
39. **(currently amended)** A coating comprising an effective amount of a bioavailable anti-fouling compound represented by general structure 1:



1

wherein

X represents -OH, -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents O, S, Se, or NR;

Z represents optionally substituted branched alkyl or unbranched C<sub>12</sub>-C<sub>7</sub> alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or -

(CH<sub>2</sub>)<sub>m</sub>-R<sub>80</sub>, wherein when Z is substituted, a substituent is selected independently for each occurrence from the group consisting of halo, azido, alkyl, aralkyl, alkynyl, cycloalkyl, ~~hydroxyl~~, alkoxyl, ~~amino~~, nitro, ~~sulfonyl~~, imino, amido, silyl, alkylthio, sulfonyl, sulfonamido, ~~acyl~~, formyl, ~~alkoxycarbonyl~~, heterocyclyl, aryl, heteroaryl, and trifluoromethyl, ~~and cyano~~;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or -(CH<sub>2</sub>)<sub>m</sub>-R<sub>80</sub>;

R<sub>80</sub> represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive,

wherein when the coating is applied to a surface of an article the coating releases the compound, thereby impairing biofilm formation on the surface.

40. **(original)** The coating of claim 39, wherein X represents -OH, F, Cl, or Br.
41. **(original)** The coating of claim 39, wherein Y represents O.
42. **(currently amended)** The coating of claim 39, wherein Z represents optionally substituted branched alkyl or unbranched C<sub>42</sub>-C<sub>7</sub> alkyl, aryl, or -(CH<sub>2</sub>)<sub>m</sub>-R<sub>80</sub>.
43. **(currently amended)** The coating of claim 39, wherein Z represents optionally substituted alkylphenyl, ~~heteroalkylphenyl~~, arylphenyl, or heteroarylphenyl.
44. **(currently amended)** The coating of claim 39, wherein Z represents ~~methyl~~, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
45. **(currently amended)** The coating of claim 39, wherein R represents H or branched alkyl or unbranched C<sub>42</sub>-C<sub>7</sub> alkyl.
46. **(original)** The coating of claim 39, wherein X represents -OH, F, Cl, or Br; and Y represents O.

47. **(original)** The coating of claim 39, wherein X represents -OH or Cl; and Y represents O.
48. **(currently amended)** The coating of claim 39, wherein X represents -OH, F, Cl, or Br; and Z represents optionally substituted branched alkyl or unbranched C<sub>42</sub>-C<sub>7</sub> alkyl, aryl, or -(CH<sub>2</sub>)<sub>m</sub>-R<sub>80</sub>.
49. **(currently amended)** The coating of claim 39, wherein X represents -OH or Cl; and Z represents optionally substituted branched alkyl or unbranched C<sub>42</sub>-C<sub>7</sub> alkyl, aryl, or -(CH<sub>2</sub>)<sub>m</sub>-R<sub>80</sub>.
50. **(original)** The coating of claim 39, wherein X represents -OH, F, Cl, or Br; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
51. **(original)** The coating of claim 39, wherein X represents -OH or Cl; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
52. **(currently amended)** The coating of claim 39, wherein X represents -OH, F, Cl, or Br; and Z represents ~~methyl~~, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
53. **(currently amended)** The coating of claim 39, wherein X represents -OH or Cl; and Z represents ~~methyl~~, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
54. **(currently amended)** The coating of claim 39, wherein Y represents O; and Z represents optionally substituted branched alkyl or unbranched C<sub>42</sub>-C<sub>7</sub> alkyl, aryl, or -(CH<sub>2</sub>)<sub>m</sub>-R<sub>80</sub>.
55. **(original)** The coating of claim 39, wherein Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.

56. **(currently amended)** The coating of claim 39, wherein Y represents O; and Z represents ~~methyl~~, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
57. **(currently amended)** The coating of claim 39, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents optionally substituted branched alkyl or unbranched C<sub>12</sub>-C<sub>7</sub> alkyl, aryl, or -(CH<sub>2</sub>)<sub>m</sub>-R<sub>80</sub>.
58. **(currently amended)** The coating of claim 39, wherein X represents -OH or Cl; Y represents O; and Z represents optionally substituted branched alkyl or unbranched C<sub>12</sub>-C<sub>7</sub> alkyl, aryl, or -(CH<sub>2</sub>)<sub>m</sub>-R<sub>80</sub>.
59. **(original)** The coating of claim 39, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
60. **(original)** The coating of claim 39, wherein X represents -OH or Cl; Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
61. **(currently amended)** The coating of claim 39, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents ~~methyl~~, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
62. **(currently amended)** The coating of claim 39, wherein X represents -OH or Cl; Y represents O; and Z represents ~~methyl~~, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
63. **(previously presented)** The coating of claim 39, wherein the coating is temporary.
64. **(canceled)**
65. **(canceled)**



66. **(original)** The coating of claim 39, wherein the release rate of the compound from the surface is in the range of about 1 to about  $200\mu\text{gcm}^2\text{d}^{-1}$ .
67. **(currently amended)** The coating of claim 39, wherein the effective amount of bioavailable antifouling compound is in the range of 0.01 % by weight mg/ml to 6 % by weight mg/ml.
68. **(original)** The coating of claim 39, wherein the release of the compound is a sustained release.
69. **(original)** The coating of claim 39, wherein the release of the compound is a sustained release.
70. **(previously presented)** The coating of claim 39, wherein the coating is formulated as a composition selected from the group consisting of gas, vapor, aerosol, paste, gel, liquid, wax, caulk, adhesive, polymerizable compositions and paint.
71. **(original)** The coating of claim 39, wherein the article can be implanted in a living body.
72. **(original)** The coating of claim 39, wherein the article can be inserted in a living body.
73. **(original)** The coating of claim 39, wherein the article can be applied to a living body.
74. **(original)** The coating of claim 39, wherein the coating is employed as an agent selected from the group consisting of glue, cement and adhesive.

Claims 75-88 **(canceled)**

89. **(previously presented)** The coating of claim 39, wherein the article is selected from the group consisting of grafts, implants and medical devices.
90. **(previously presented)** The coating of claim 39, wherein the article is a plant or plant component.
91. **(previously presented)** The coating of claim 90, wherein the effective amount decreases the amount of plant pathogens attached to the plant or plant

component by a factor of 4 relative to a control that does not comprise the compound.